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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,961	10/31/2003	Sivakumar Ramasamy	0275M-000666/COB	8815
27572	7590	06/10/2005	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			SHARP, JEFFREY ANDREW	
			ART UNIT	PAPER NUMBER
			3677	
DATE MAILED: 06/10/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,961

Applicant(s)

RAMASAMY ET AL.

Examiner

Jeffrey Sharp

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27, 29-31, 33-42 and 48-52 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 and 48-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-17, 23-27, 29-31, 33-42 is/are rejected.
- 7) ☒ Claim(s) 13, 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

[1] This action is responsive to Applicant's remarks/amendment filed on 11 April 2005 with regard to the Official Office action mailed on 09 December 2004. All remarks and amendments to the claims have been carefully considered.

Status of Claims

[2] Claims 1-27, 29-31, 33-42, and 48-52 are pending. Claims 28, 32, and 43-47 are cancelled. Claims 19-22 and 48-52 have been withdrawn from consideration. Claims 2, 13, 18, 35, 36, 40, and 41 are currently objected to for informalities. Claims 1-12, 14-17, 23-27, 29-31, and 33-42 are rejected under 35 U.S.C. 103(a). Claims 13 and 18 are objected to, but would be allowable under the circumstances provided in section [13] of this Office Action.

Specification

[3] The disclosure was previously objected to for informalities. Applicant has successfully addressed these issues in the amendment filed on 11 April 2005. Accordingly, the objection(s) to the specification have been withdrawn.

Claim Objections

[4] Claim(s) 13, 17, 24, 33, 34, 40, and 41 were previously objected to because of informalities. Applicant has successfully addressed most of these issues in the amendment filed on 11 April 2005.

However,

Claim 13 still has no antecedent basis for the limitation "*the third failure load*", as it depends from itself.

Claim 18 still has no antecedent basis for the limitations "*the first and second metallic layers*". The word "amid" on line 6 should be --and--.

Claim 36 still has no antecedent basis for "*the first failure load*".

Claim 40 still has no antecedent basis for the limitation "*the first and second layers*".

Claim 41 still has no antecedent basis for the limitations "*the first and second metallic layers*".

Claim 2 is currently objected to as having been inadvertently amended. The added words "an externally" should be deleted from claim 2 and added before "threaded shank" in claim 3.

Claim 35 is currently objected to, because the word --portion-- should be inserted after "web".

Appropriate action is required.

Claim Rejections - 35 USC § 112

[5] The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

[6] Claim(s) 18 and 41 were previously rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has successfully addressed the issue(s) of indefiniteness in the amendment filed on 11 April 2005. Accordingly, the rejection of claims 18 and 41 under 35 U.S.C. 112, second paragraph have been withdrawn. See above objections to claims 18 and 41.

Double Patenting

[7] Claims 1-3 and 5-7 were previously rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,818,851. Claims 1-3, 8-12, 14, 15, and 31-38 were previously rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,818,851. Claims 1-3, 8-12, 14-16, 31-39, and 42-46 were previously rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of U.S. Patent No. 6,818,851. Claims 1-3, 8-12, 14, 15, 17, 31-38, and 40 were previously rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 6,818,851. Claims 1-3, 5-7, 23-26, and 28-30 were previously rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,818,851. Claims 4 and 27 were previously rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6,818,851.

A timely and proper terminal disclaimer was filed by Applicant on 11 April 2005 to obviate all of the aforementioned double-patenting rejections. Accordingly, these rejections are withdrawn.

New Grounds of Rejection

Claim Rejections - 35 USC § 102

- [8] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- [9] Claim 42 is rejected under 35 U.S.C. 102(b) as being anticipated by Bregenzer et al. GB-2,065,011.

In short, Bregenzer et al. teaches a ring stud welded to a polymer laminate panel (claim 14) by an annular weldment area. The laminate comprises two metal sheets (page 1, line 7).

Claim Rejections - 35 USC § 103

- [10] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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[11] Claim(s) 1-12, 14-17, 23-27, 29-31, and 33-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bregenzer et al. GB-2,065,011 in view of Soyer DE-4,222,664 and Applicant's disclosure.

In short, Bregenzer et al. suggest a weldable fastener comprising: a head (20,22,24) with thickness T1, an annular weldment area (24 or 28) with thickness T2, the annular weldment area outer radius is equal to the head radius, the dimension T2 being less than T1, a threaded shank (page 1 lines 56-57), a web portion (22), a metal laminate having a polymer layer sandwiched between two metallic layers (claim 13), and the dimension T1 being greater than 1.5 mm and 2 mm (page 2, line 47).

However, Bregenzer et al. do not expressly disclose an annular weldment area having a thickness less than 50 percent of the head thickness as amended by Applicant, and in particular, 20-35% of the head thickness. Further, Bregenzer et al do not expressly disclose a weakened portion adjacent to the head.

Soyer suggests in Figure 1a and page 2 last paragraph, that "height h...amounts preferably to 1mm", and that the web thickness ranges from 5 to 10 mm (H in the table). Therefore, Soyer suggests head thicknesses (h + H) of 6-11mm and annular weldment area thicknesses of preferably 1 mm. Accordingly, the teachings of Soyer suggests that weldment-to-head thickness ratios between about 9-16% would not be unobvious from Soyer's teachings. This falls well below 50%. Furthermore, Soyer infers that both weld *studs* and *nuts*¹ could advantageously make use of the disclosed weld interface. Accordingly, it would be obvious to

¹ Soyer states: "By the annular attachment 4, 4' in Figs. 1a, 1b, or 40, 40' in Figs. 2a and 2b, on the connecting elements there represented in the form of welding nuts or threaded bolts..." Further, in the last paragraph of the specification, Soyer clearly suggests that the groove feature (5) shown in the drawings as only being provided to the nut, may also be advantageously provided to the threaded bolts.

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provide to a weld nut or bolt, an annular weldment area with a thickness less than 50 percent of the head thickness. Note that Soyer's annular weldment area is advantageous "especially on comparatively thin substrates in the form of sheet metal," because it easily surpasses past minimum panel thickness-to-bolt diameter ratios (second to last paragraph).

Applicant admits in paragraph [0004] that it is commonplace to fasten weld studs to thin metallic laminates comprising a polymer core. Metal laminates having a polymer layer sandwiched between first and second metallic layers are common in automotive applications that use weld studs, and thus was well-known to those of ordinary skill the art at the time of invention. An example of this, is the brand name sheet material Hylite®, which is favored in vehicle applications for its lightweight, stiffness, dent resistance, weldability, and sound dampening qualities. It is also known that the internal polymer layer of this laminated material, when heated (i.e., welded or deformed), inherently melts the two outer metallic layers together, thus satisfying the limitation "*the polymer layer within the annular weldment area couples the first and second metallic layers*". See cited reference Clyne et al. page 18, claim 14 and page 4, figures 4 and 5. See also cited Hylite® publications.

At the time of invention, it would have been obvious to one having an ordinary skill in the art, to employ the advantageous annular weldment area relative dimensions suggested by Soyer to any weld stud having an annular weldment area (e.g., the similar weld stud disclosed by Bregenzer et al.), in order to secure the same diameter bolt to a thinner substrate (e.g., the well-known metallic laminates admitted by Applicant). Further, it would have been obvious to one of ordinary skill in the art, to use the fastener suggested by Bregenzer et al. and Soyer in combination with a weldable laminate sheet having a polymer layer sandwiched between two

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metallic layers (e.g., Hylite®), especially in automotive applications, in order to achieve the aforementioned advantages of weldable laminates over conventional panel materials.

It is not required that the prior art disclose or suggest the properties newly-discovered by an applicant in order for there to be a prima facie case of obviousness. *See In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897, 1905 (Fed. Cir. 1990). Moreover, as long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor. *See In re Beattie*, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992); *In re Kronig*, 539 F.2d 1300, 190 USPQ 425 (CCPA 1976) and *In re Wilder*, 429 F.2d 447, 166 USPQ 545 (CCPA 1970). The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F. 2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In this regard, a conclusion of obviousness may be based on common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference. *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

As for claims 2 and 25, the exterior wall radius of the fastener head is the same as the annular weldment area.

As for claims 4 and 27, Soyer suggests providing a weakened section (5, Figure 1b) adjacent to the head, in order to "*prevent [the] settling of weld splashes*" (last paragraph of Soyer's disclosure).

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As for claims 3, 9, 26, and 33, both Bregenzer et al. and Soyer show a threaded shank (page 1 lines 56-57 and 20', respectively).

As for claims 5 and 24, it would have also been within an obvious scope to one having ordinary skill in the art at the time the invention was made, to contrive a range of 20-35% for the relative thickness ratio, since it has been held that where the general conditions (in this case, preferably 9-16% taught by Soyer) of a claim are disclosed in the prior art, discovering the *optimum* or *workable* ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Note that those of ordinary skill in the art would appreciate that a modification such as a mere change in size of a component is obvious. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). See also, MPEP § 2144.04 which states: *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) ("mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled." 531 F.2d at 1053, 189 USPQ at 148.). In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device: In the instant case, Applicant has not provided sufficient evidence showing how such a relative size limitation solves any problem stated in the prior art.

As for claims 6, 7, 29, and 30, the head thickness dimension T1 taught by Bregenzer et al. is greater than 1.5 mm and 2 mm (page 2, line 47).

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As for claims 10 and 34, both Bregenzer et al. and Soyer show a web portion (22 and 50', respectively).

As for claims 11 and 35, it is a simple engineering principle that a larger diameter portion (herein, referred to as "web portion 21") has a larger cross-sectional area, and therefore would sustain a higher tensile or compressive load than a smaller diameter portion (herein, "shank 12").

As for claims 12 and 36, it would be obvious to have the threads of the shank strip (herein, "failure load") before the weld breaks, therefore satisfying the limitation, *"the annular weldment has a third failure load greater than the first failure load"*.

As for claims 14-16, 37-39 and 41, Applicant admits that it is commonplace for weld studs to be joined to metal laminates comprising a polymer layer.

As for claims 17, 40, and 41, Applicant admits that "weld studs burn through at least the first layer of the thin laminate material", and therefore, it would be obvious to have a weldment area partially disposed between first and second metallic layers.

As for claim 23, the welding edge of Soyer is shown to be *"flat along a lateral plane substantially parallel to a lateral plane of the head, prior to welding"*.

Response to Arguments/Remarks

[12] Applicant's arguments/remarks with regard to the Bregenzer et al. GB 2,065,011 reference have been fully considered, but are moot in view of the new grounds of rejection necessitated by amendment.

With regard to the Soyer DE-4,222,664 reference, when the reference is a utility patent, it does not matter that the feature shown is unintended or unexplained in the specification. The

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drawings must be evaluated for what they reasonably disclose and suggest to one of ordinary skill in the art. *In re Aslanian*, 590 F.2d 911, 200 USPQ 500 (CCPA 1979). "In those instances where a visual representation can flesh out words, drawings may be used in the same manner and with the same limitations as the specification." *Autogiro Co. of America v. United States*, 384 F.2d 391, 398, 155 USPQ 697, 703 (Ct. Cl. 1967).

When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See *Hockerson-Halberstadt, Inc. v. Avia Group Int 'l*, 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000) (The disclosure gave no indication that the drawings were drawn to scale. "[I]t is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue."). However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977) "We agree with the Solicitor that Bauer's teaching that whiskey losses are influenced by the distance the liquor needs to traverse the pores of the wood (albeit in reference to the thickness of the barrelhead)" would have suggested the desirability of an increased chime length to one of ordinary skill in the art bent on further reducing whiskey losses." 569 F.2d at 1127, 193 USPQ at 335-36.)

In the instant case, Soyer is not completely silent on the issue of relative dimensions, and suggests to at least within an obvious scope, an annular weldment thickness of less than 50% of the head thickness, and preferably about 9-16% (within an obvious reach of the 20-35% limitation found in claims 5 and 24). Soyer's teachings broadly suggest the desirability to have a

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thinner annular weldment area than the fastener head. However, that said, all arguments in view of Soyer anticipating the claims are moot in view of the grounds of rejection necessitated by amendment.

Applicant's arguments/remarks with regard to the Musikowski reference have been fully considered and are persuasive, in view of the amendment. As amended, Musikowski does not anticipate or expressly disclose the "less than 50%" limitation. Accordingly, the rejection of claims 1, 3, 8-10, 14-16, 23-24, 26, 31-34, and 42-44 as being anticipated by Musikowski has been withdrawn.

Applicant's arguments/remarks with regard to the Logan reference have been fully considered and are persuasive, in view of the amendment. As amended, Logan does not teach the "less than 50%" limitation. Accordingly, the rejection of claims 1, 3, 8-10, 14-16, 23-24, 26, 31-34, and 42-44 as being obvious over the Logan reference in view of others has been withdrawn.

Allowable Subject Matter

[13] Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of claims 8-12 (as of now, claim 13 is erroneously dependent on itself); AND if the word "member" (in claims 8, 9, and 10) is changed to "head" to avoid indefiniteness (i.e., a "member" is not enabling to those of ordinary skill in the art, because any part of the fastener can be construed as a "member").

In short, the prior art of record does not teach a weld stud attached to a structure, having a first member (i.e. 'head') having a thickness greater than 50% of an annular weldment area

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thickness (i.e., hollow cylindrical weldment portion beneath the head opposite the shank), an annular weldment with a third failure load, a shank with a first failure load, a web portion with a second failure load greater than the first failure load, and a frangible nut having a 4th failure load less than the third failure load of the weldment, so as to allow the nut to fracture before the stud, and the stud to fracture before the weld joint, thus providing two safeguards before laminate damage occurs. WO 03/004883 shows a nut (19), but appears to be silent about these relative failure load limitations.

Claim 18 is objected to for informalities (see above claim objections), but would be allowable upon proper correction.

Conclusion

[14] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

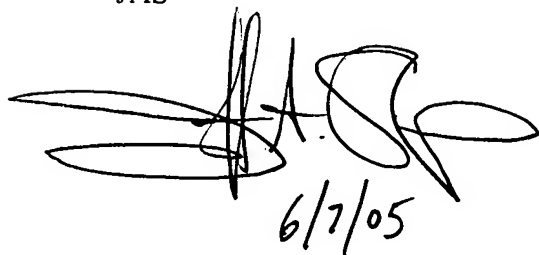
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[15] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (571) 272-7074. The examiner can normally be reached 7:00 am - 5:30 pm Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS



6/7/05



ROBERT J. SANDY
PRIMARY EXAMINER